Chapter 2
PLANNING AREA DESCRIPTION

PLAN BOUNDARIES

The Kissimmee Basin (KB) Planning Area encompasses that portion of the SFWMD extending from southern Orange County, through the Kissimmee Chain of Lakes and the Kissimmee River, to the north shore of Lake Okeechobee. The area includes parts of Orange, Osceola, Polk, Highlands, Okeechobee, and Glades counties. The portions of these counties within the KB Planning Area will be referred to as the Orange Area, Osceola Area, Polk Area, Highlands Area, Okeechobee Area, and Glades Area in this document. The boundary of the KB Planning Area generally reflects the drainage basin of the Kissimmee River. The northern and eastern portions of the boundary are adjacent to the St. Johns River Water Management District, while the western boundary is adjacent to the Southwest Florida Water Management District.

The KB Planning Area is divided at the outlet of Lake Kissimmee into upper and lower sections (**Figure 5**). The upper lake section (Upper Kissimmee Basin) has an area of 1,368 square miles, of which 176 square miles are lakes. The lower river system (Lower Kissimmee Basin) covers 2,109 square miles, of which 44 square miles are lakes (SFWMD GIS data). The Upper Kissimmee Basin includes a series of lakes linked by streams and canals referred to as the Kissimmee Chain of Lakes.

RELATED PLANNING AREAS

The District has established four water supply planning areas: (1) the Upper East Coast, (2) the Lower East Coast, (3) the Lower West Coast, and (4) the Kissimmee Basin. The planning areas are generally defined by the drainage divides of major surface water systems in South Florida. The major water bodies considered in establishing these boundaries include the Kissimmee River, Lake Okeechobee, the Everglades and the Big Cypress Swamp. The series of canals, levees, pump stations, and storage areas that comprise the Central and South Florida Flood Control Project were also considered because these structures have altered the hydrology of the natural water bodies (see Surface Water Resources discussion in Chapter 3).

Lake Okeechobee is considered part of each of the planning areas, which are connected to the lake through a regional surface water system. The Kissimmee River is the predominant surface water inflow into the lake, while the remaining three planning areas receive outflows from the lake. The major outflows are: (a) the Caloosahatchee River to the Lower West Coast; (b) the St. Lucie Canal to the Upper East Coast; and (c) the West Palm Beach, Hillsborough, North New River, and Miami canals to the Lower East Coast.

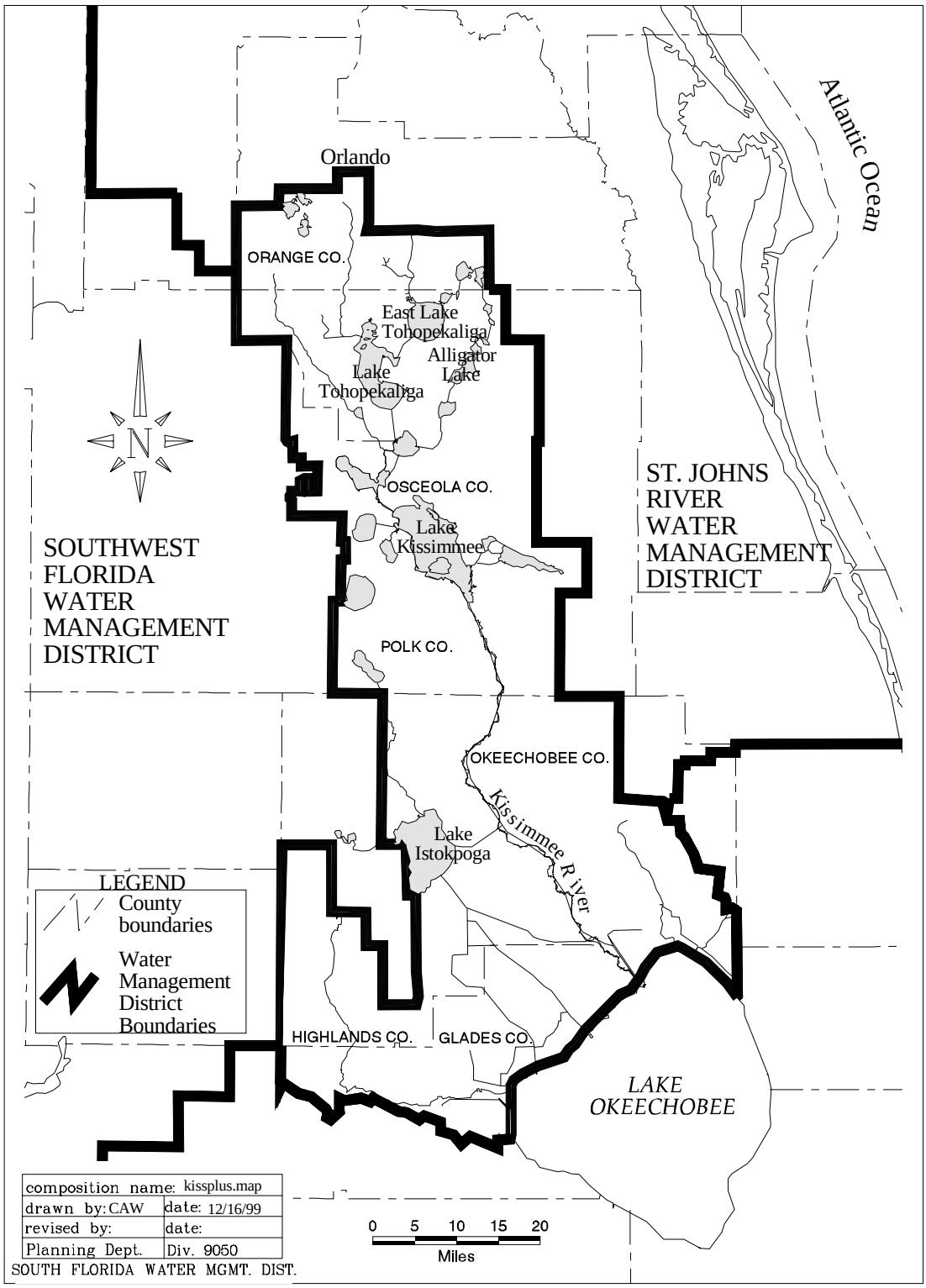

Figure 5. Kissimmee Basin Water Supply Planning Area.

PHYSICAL FEATURES

Geography and Climate

The KB Planning Area covers 3,477 square miles and has an average elevation of 63 feet. Average seasonal temperatures range from 60° F during the winter to 83° F during the summer (SFWMD DBHYDRO data). Annual average rainfall in the KB Planning Area is about 50 inches. Rainfall is further discussed in Chapter 3.

Physiography

The KB Planning Area has three major physiographic zones. These zones are identified by White (1970) as: (1) the Lake Wales Ridge, (2) the Osceola Plain, and (3) the Okeechobee Plain. The Lake Wales Ridge traverses the western edge of the KB Planning Area and is bounded on the east by the Osceola and Okeechobee plains. In general, the physiographic features in the region were formed as the land mass gradually emerged from a retreating sea.

The Lake Wales Ridge is a relict beach ridge with elevations exceeding 100 feet. The crest of the ridge forms the water divide between the South Florida Water Management District (SFWMD) and the Southwest Florida Water Management District (SWFWMD). Most of the surface waters to the east of the ridge are drained by the Kissimmee River.

Most of the KB Planning Area lies within the Osceola Plain, named after Osceola County which is almost wholly encompassed within it. The Osceola Plain is a broad flat area about 40 miles in width and 100 miles in length. The highest elevation of the Osceola Plain is between 90 and 95 feet near the southern part of Orlando. Elsewhere it is between 60 and 70 feet in elevation with small local relief. The Osceola Plain narrows toward the southeast where it meets the northeastern edge of the Okeechobee Plain.

The Osceola Plain has numerous lakes, including some of the largest lakes in Florida. These lakes are described in Chapter 3. Little research has been conducted on the geomorphology of the lakes. Most of the area’s natural lakes probably originated as sinkholes when sea level was much lower than it is today. Sinkholes are common in areas that are underlain by limestone, which is soluble in water. The larger lakes may have formed over a long period of time through the coalescence of a large number of sinkholes.

These lakes drain into the Kissimmee River, which begins at the southern end of Lake Hatchineha and flows southward through Lake Kissimmee, and then south through the Osceola and Okeechobee plains, before flowing into Lake Okeechobee. Where the Kissimmee River flows across the Osceola Plain, it occupies a floodplain valley about a mile and a half wide. However, where the river flows in the Okeechobee Plain, the distinction between the valley and upland surface is obscure.

The Okeechobee Plain, named after Okeechobee County and the adjacent Lake Okeechobee, gradually slopes southward from an elevation of 30 to 40 feet near the top of its boundary, to about 20 feet at the north shore of Lake Okeechobee. The plain is about 30 miles wide and 30 miles long, with less local relief than the Osceola Plain.

POPULATION

The driving force behind urban water demand is population. Population in the Kissimmee Basin planning region is projected to increase by 89 percent, from 362,837 in 1995 to 686,696 in 2020. Most of the population in the KB Planning Area resides in the northern urban areas, particularly southern Orange and western Osceola counties (**Table 2**). The northern urban areas also are expected to experience the most significant population increases. By contrast, the southern areas are expected to have minor increases of residents. The relationship between population and urban water demand is discussed in Chapter 6.

Table 2. Population 1995-2020.

Region	1995	2020	Increase	% Growth
Orange Area	186,131	349,453	163,322	88
Osceola Area	130,605	260,937	130,332	100
Polk Area	6,375	13,832	7,457	117
Highlands Area	7,700	11,590	3,890	51
Okeechobee Area	28,737	45,244	16,507	57
Glades Area	3,289	5,640	2,351	71
Total	362,837	686,696	323,859	89

MUNICIPALITIES

There are seven municipalities in the KB Planning Area. These are Bay Lake, Lake Buena Vista, Orlando, Windermere (Orange Area); Kissimmee and St. Cloud (Osceola Area); and Okeechobee (Okeechobee Area). There are no municipalities in the Highlands or Polk areas.

The Orange Area has the most municipalities. The largest of these, Orlando, is partially within the St. Johns River Water Management District.

AGRICULTURE

Agricultural activity represents the single largest water use type within the planning region. Citrus is the major irrigated agricultural crop in the KB Planning Area, and this trend is expected to continue over the next 20 years (**Table 3**). A major change in

the geographic distribution of citrus production occurred in Central Florida following a series of severe freezes in the mid-1980s. Since then, a reduction in citrus acreage has taken place in the northern areas of the Kissimmee Basin. Conversely, to the south, significant increases in citrus acreage have been observed. These general trends in citrus acreage are projected to continue through 2020. The relationship between irrigated agricultural acreage and agricultural water demand is discussed in Chapter 6.

Table 3. Irrigated Citrus Acreage 1995-2020.

Region	1995	2020	Change in Citrus Acreage	% Change
Orange Area	6,210	3,275	-2,936	-47
Osceola Area	19,807	19,408	-399	-2
Polk Area	2,354	1,916	-438	-18
Highlands Area	39,324	61,037	21,713	55
Okeechobee Area	11,408	18,282	6,874	60
Glades Area	8,087	11,996	3,908	48
Total	87,190	115,914	28,722	33

Source: SFWMD Districtwide Water Supply Assessment, 1998.

LAND USE

The existing land use in the KB Planning Area is generally more urban in the north than in the south. Continued urbanization is anticipated in the north, while in the south, citrus acreage is projected to increase.

Existing Land Use

The KB Planning Area is predominantly agricultural, especially in the Glades, Highlands, and Okeechobee areas. The Orange Area is by far the most urbanized, and the Orange, Osceola, and Polk areas have the highest percentages of wetlands (**Table 4**). The majority of agricultural land (including rangeland) is used for pasture, which is rarely irrigated. A land use map for the KB Planning Area is shown on **Plate 1**.

Within Glades County is the Brighton Reservation, one of several Seminole Tribe reservations in Florida. The Brighton Reservation is located northwest of Lake Okeechobee within the Lake Istokpoga-Indian Prairie Basin. The Reservation was established in 1938 and currently has a population of about 500. The Reservation covers almost 36,000 acres, which is primarily agricultural, including improved pasture, citrus, sugarcane, and aquaculture.

Table 4. Acreage and Percentage of Land Use by County Area[a].

Land Use	Orange Area	Osceola Area	Polk Area	Highlands Area	Okeechobee Area	Glades Area	Kissimmee Basin Area
Agriculture	31,513 (17%)	218,656 (35%)	44,243 (16%)	259,362 (53%)	189,625 (52%)	139,470 (47%)	882,869 (40%)
Urban	60,243 (32%)	52,212 8%	51,449 (19%)	42,194 (9%)	21,928 (6%)	2,760 (1%)	230,786 (10%)
Wetlands	36,338 (20%)	164,355 (27%)	59,571 (22%)	76,821 (16%)	66,800 (18%)	59,678 (20%)	463,563 (21%)
Forest	30,264 (16%)	74,857 (12%)	65,136 (24%)	41,586 (9%)	32,591 (9%)	68,578 (23%)	313,012 (14%)
Rangeland	2,005 (1%)	26,012 (4%)	25,270 (9%)	33,489 (7%)	48,284 (13%)	20,223 (7%)	155,283 (7%)
Barren	3,419 (2%)	2,842 (1%)	1,420 (1%)	3,733 (0%)	3,588 (1%)	2,471 (1%)	17,473 (1%)
Water	21,796 12%	81,082 (13%)	23,885 (9%)	30,022 (6%)	4,299 (1%)	1,492 (1%)	162,576 (7%)
Total	185,578 (100%)	620,016 (100%)	270,974 (100%)	487,207 (100%)	367,115 (100%)	294,672 (100%)	2,225,562 (100%)

a. Data for the portion of county within the KB Planning Area only.
Source: SFWMD Florida Land Use/Land Cover Geographic Information System Database, 1995.

The Lake Istokpoga-Indian Prairie Basin has historically experienced water shortages. The Seminole Tribe of Florida, the State of Florida and the District executed a Water Rights Compact in 1987. The Compact establishes, among other things, the Tribe's water entitlement for the Brighton Reservation. A subsequent Agreement (Number C-4121) was executed in the early 1990s and further defines the Tribe's water rights. This Agreement is further discussed in Chapter 5.

Land Use Trends

The rapid conversion of rural land into urban land is expected to continue in southern Orange County and in northwestern Osceola County. Additionally, continued urban development is expected in Polk County along the I-4 Corridor. The remaining areas in the Kissimmee Basin are expected to remain largely rural.

Orange County

The Orlando Metropolitan Area has experienced a high rate of growth since the development of Disney World in 1971. The metropolitan area extends outward from Orlando along major transportation arteries, especially the I-4 Corridor.

Residential developments are the dominant urban land use and are expected to remain so through 2020. The growth in theme parks, associated hotel/motel and convention commercial land uses, and a burgeoning high tech industry have allowed the

Metro area to become a financial and business service center for Central Florida and portions of the southeastern U.S.

Many agricultural lands in the Metro area, especially orange groves affected by the freezes of the 1980s, have been converted into largely residential urban uses. This has caused Orange County to experience a substantial decline in agricultural acreage. Citrus remains the predominant irrigated crop in the county, but has declined dramatically since the 1980s. For example, in 1982 there were 48,527 acres of citrus countywide. This declined to 10,029 acres in 1996. Of these, 6,210 acres are in those portions of the county draining into the Kissimmee Basin. This number is expected to decrease to 3,275 acres by the year 2020 (SFWMD, 1998).

Osceola County

The northwestern portion of Osceola County is also experiencing a high rate of urban growth as the Orange County Metropolitan area expands to the south along the U.S. 17/92/441 Corridor, and to the southwest along the I-4 Corridor. This trend is expected to continue through the year 2020.

Despite Osceola County's high rate of urban development, the predominant land use remains agricultural, largely rangeland. The Osceola County Comprehensive Plan indicates that there were 701,883 acres of agriculture in 1990. The vast majority of this is unirrigated pasture. Citrus is the predominant irrigated agricultural crop within the county. Agricultural land use is expected to decline through 2020, as urbanization in the northern portion of the county continues.

Polk County

Urbanization in Polk County is occurring along the I-4 Corridor, where growth from Orlando and Tampa is spreading. It is estimated that three percent of the county population resided within the District's boundaries in 1990. This area is expected to remain largely rural through 2020.

Highlands, Glades, and Okeechobee Counties

Within Highlands County, urbanization is occurring on the Lake Wales Ridge along U.S. Highway 27, which is outside the jurisdiction of the SFWMD and does not drain into the Kissimmee Basin. It is estimated that 39,800 people resided in these counties and within the jurisdictional boundary of the SFWMD in 1995. This number is expected to increase to 62,475 by the year 2020 (SFWMD, 1998).

The majority of land use in Highlands, Glades, and Okeechobee counties is, and is expected to remain, agricultural. The acreage devoted to citrus production is projected to increase through 2020. This is reflective of the migration of the citrus industry to more southern locations in the state following severe freezes in the 1980s.

Sugarcane has seen a rise in production in Highlands and Glades counties in recent years due to regulatory changes. Sugarcane, which was nearly nonexistent in this basin 10 years ago, increased to roughly 3,300 acres in 1995. Production is projected to reach 15,300 acres by the year 2020.

The dairy industry is a major industry in Okeechobee County, but has undergone a significant decline in recent years as a result of land acquisitions and rule changes designed to improve water quality in Lake Okeechobee. Despite this reduction, Okeechobee County remains the state's leading producer of beef and dairy cattle, and has extensive acreage devoted to pasture and range.